Harford County Astronomical Society

Celebrating Our 40th Anniversary!

Monthly Newsletter

Volume 36 Issue 11 November 2010

Public Star Party
Saturday, December 11
at Dusk
At the HCAS Observatory

General Meeting
Thursday, November 18
at 7:00pm
In the Observatory Classroom
After meeting Class:
Stack and Processing Astrophotos Workshop

Please check our website for possible schedule updates and changes:
http://www.harfordastro.org

http://astroleague.org/ http://nightsky.jpl.nasa.gov/

In This Issue:

HCAS General Meeting Notes.....p.2
**Observation Reports……..……..……..

much faster unit than the old one and should be a big help with making presentations. The older one will be moved up into the dome to help with operations there. There was a motion by Kregel/Kamel to get a new laptop to replace the old one that is in poor condition and has a dead battery. It was agreed that the motion would be put on hold till we see who will be attending the astrophotography classes and who will need to borrow a laptop.

Broad Creek: The next observing cycle at Astronomy Hill will be from 10/28 to 11/8. There will be no moon for most of those nights.

Night Sky Network: Our Astronomy day function on 10/16 was the front page story on the NSN website. Space Weather also posted on their website the photo of Comet 103P/Hartley that was taken by Tom Rusek, Mike Talbard, Gary George and Larry Hubble.

This meeting was adjourned at 8:08.

- *Tim Kamel*

Treasurers Report

October 12, 2010

Current balance in checking account is $2625.52 and I am holding $165.50 to be deposited, for a total of $2791.02.

We have added three new memberships since my last report. Our membership is now at 54 individuals and families.
- *Tim Kamel*

New Members

November 13, 2010

Please welcome three new members to out Society:

Stephen Clark

The Bradley Family - Erica, Darryl Jr. and Damaris

Rick Fink

Welcome aboard!

Observation Reports

Broad Creek

November 1, 2010

Sunset was at 6pm, and with the sun setting earlier each night, it becomes easier to observe for several hours in the early evening and get home by 10pm. (This compensates nicely for the cold weather.)

It was also a dry evening, free of dew. There were some odd sounds in the twilight, however; namely, the gunfire from the nearby police target range and later, the shrill growl of the bobcat. The bobcat's sounds were coming from the northern woods, coincidentally under the constellation Lynx (Latin for "bobcat"). Other than that, however, it was a quiet, but chilly, evening.

By 6:20pm, Jupiter was bright enough to observe in the southeastern sky. Through my 12.5" Obsession, the planet appeared with two bright moons on either side, plus three distinct bands across its disk. The Great Red Spot appeared distinctly in the southwest portion of the planet, although it was gray in color.

Moving to the galaxy M33, then about 30 degrees above the eastern horizon, I saw that it appeared a dull gray, with its star cloud, NGC604 appearing as bright as the galaxy's core. I used both the 35mm Panoptic and 12mm Nagler eyepieces on this galaxy.

Near the zenith, in Pegasus, was NGC7331; however, I was unable to see any of its companion galaxies.

I moved the scope northward to the dim polar constellation Camelopardalis, where I was able to glimpse IC3568, a tiny planetary nebula. In photographs, it appears like a "sliced lime", but it remained for me a fuzzy dot, even at 175x, with both the OIII and UltraBlock filters.

Remaining in Camelopardalis, I saw the open cluster NGC1502 as well as another planetary nebula, NGC 1501.

The stars were very bright on this night, although the seeing wasn't the best, about 2 out of 5. Lyra was almost directly overhead and you could see every star clearly.

When I checked M33 again, after astronomical twilight had ended, it looked a little duller than usual. (I often judge the quality of the seeing by the appearance of M33.)

This month, the Perseus-Cassiopeia-Andromeda region of the sky is rising in the northeast. These constellations belong to the "Perseus arm" of the Milky Way, and on this night the arm was quite bright, since that region of the sky was free of light pollution. Looking down the Perseus Arm is like looking down a highway that becomes narrower in the distance. Along that highway are numerous objects which appear, due to earth-perspective, to be packed into the same area.

I first visited two of my favorite open clusters in Cassiopeia, NGC7789 and M103. Then I viewed a more difficult object, the faint cluster NGC188 in nearby Cepheus. This cluster is unique if only because of its age - an estimated 9 billion years.

Moving into Perseus' region, I viewed the open cluster M34, with its numerous double stars. I concluded with the planetary nebula M76, also called the "Little Dumbbell" because it looks like M27 (The "big" Dumbbell :) There is a theory that says most planetary nebulae would look this way if viewed sideways, including objects like M57 (The Ring) or NGC 7009 (The Helix).

Jupiter was approaching the southern meridian now, and I began observing with the 12mm Nagler (121x) eyepiece and a blue filter. However, the seeing by that time had deteriorated to about 1 out of 5. I had been able to see more detail just after sunset., while the planet was still rising.

The air was getting chilly at this point, so I had about another 15 minutes left to observe. I decided to do some viewing with my new 10x50 binoculars, and then swept through the Pleiades, the Double Cluster, the Alpha Persei Association and M34 - all very bright and twinkling in the cold air.

I began packing at 9pm, with my car's thermometer reading 39 degrees F. It had been a pleasant three hours.

November 2, 2010
Broad Creek

Bill Gelston and I arrived at the BC gate around 5:30pm. The seeing was about 2 out of 5. The Milky Way was very faint, even the Cygnus area overhead. Here's what I saw:

NGC188 - Dim but large open cluster in Cepheus. Covered about half the field of view of the 12mm Nagler eyepiece.

M33 – Galaxy in Triangulum, dim in the astronomical twilight

After observing these objects and Jupiter in the twilight, I began looking for objects in the Cassiopeia region. There are dozens of small but interesting open clusters in Cassiopeia and Perseus. Many of them appear to consist of long strings of stars rather than roundish clusters. Even their names are unusual since they don't belong to the Messier or NGC catalogs. Many of these clusters appear more like strands and loops of stars, rather then circular collections of them. This is partly because the overall gravity of the Perseus Arm is breaking up the clusters, or at least distorting them.

In Cassiopeia, I located:

NGC 129 - Open cluster

NGC225 - Open cluster

Trumpler 1 - 2 rows of stars

Trumpler 2 – A string of stars

Trumpler 3 – Normal-looking open cluster

Stock 2 – Small open cluster

Berkeley 68 – Open cluster made of small strings of stars

NGC1528 - Interlaced swirls of stars

NGC1445 - Striking mixture of bright and dim stars

NGC1582 - S-shaped open cluster in Perseus

NGC 1342 and 1444 - Two more strands of stars in Perseus.

The temperature had reached 34°, according to my car's thermometer, so we began packing around 9:20pm

- Roy Troxel

Broad Creek
Nov. 6, 2010

Fantastic night out tonight!! Transparency was a 4/5, seeing wasn't good, a 2/5, but the transparency was so good that it was extremely dark at Broad Creek. It ended up being me, Dale, and my mom for a 2 hour session from 8 to 10. It was definitely cold but the wind was non-existent. I brought along my laser pointer and showed my mom the constellations, then we found the best DSOs in the little 76mm tabletop reflector I bought for a whole $19 ($27 shipped). This thing is amazing, at a 300mm focal length it's a super wide field scope.

Easily found M13 and M11, M37, little resolution in them. The VEIL NEBULA was visible in the 76mm!! It showed both halves in the SAME FOV! It didn't resolve a lot of detail at such a low power but that was a heck of a view. What could top that? How about seeing the NORTH AMERICA NEBULA AND THE PELICAN NEBULA IN A 76MM SCOPE? With a UHC filter in the entire North America Nebula easily fit in the FOV!! You could make out the entire north America shape and even the pelican was visible! This is a really really REALLY tough object and it was a piece of cake. The double cluster looked great, the coat hanger is framed perfectly in this little scope, as is M45, and M31 was huge in the little scope, even showing 1-2 dust lanes and 1 of the 2 companion galaxies!

Best $27 I've spent in this hobby, I'll definitely recommend this scope for a cheaper option for the holidays.

- Jeremy Kirkendall

Nov. 7, 2010
Broad Creek

The seeing on this night was intermittent. There were periods when the sky was cloudless and dark, but there were an equal number of times when the sky was overcast and dark.

I had been concentrating this week on the Perseus Arm of the Milky Way, which includes the constellations of Cassiopeia and Perseus, containing a wealth of clusters and nebulae. One nice feature about these objects is that most of them are visible the year around.

Tim arrived around 6pm, with his new 4" apochromatic refractor. We viewed M13, Jupiter and a few other clusters. The apo obtained tight, bright images of the stars.

I continued my hunt for objects in Cassiopeia. I caught a glimpse of Cedarblad 214, an emission nebula in Cepheus.

Moving eastward into Perseus, I caught open clusters NGC1513 and 1528. I also saw IC438 a circular-shaped cluster near Omicron Persei, but I couldn't detect any of the nebulosity there. NGC1545 appeared as attractive cluster with a triangle-shaped pattern of stars in its center.

I concluded with Basel 10, another string cluster just above the Double Cluster and associated with it gravitationally.

By 8:45pm, the clouds had again covered most of the sky, so Tim and I started packing. When I returned home a half-hour later, about 75% of the sky had cleared again, and I could see the shoulder of Orion (Bellatrix) rising in the east. (Wouldn't you know it?)

- Roy Troxel

Nov. 9, 2010
Broad Creek
5:30pm to 8:45pm

This was an occasionally windy, but very dry evening at BC. The seeing just after sunset was quite good, probably 4 out of 5. At sunset, the thin 2-day-old crescent moon was poised over the bare trees in the southwest. Bill Gelston had brought his Celestron SCT and I had, as usual, my 12.5" Obsession. We both noticed a new light dome growing along the southeast horizon. (Ugh.)

Turning toward Jupiter, I saw a small black dot on the planet's southwest quadrant, which turned out to be the shadow of the satellite Io.

Other objects viewed included:

IC348 - Open cluster and nebula near the star Omicron Persei

NGC 1491 - Faint emission nebula in Cassiopeia

NGC744 – Open cluster in Cepheus

NGC1848 and 1805 – Open clusters in Cassiopeia

NGC1333 - Nebula in Perseus

NGC6946 - The "fireworks" galaxy in Cepheus. It didn't look like fireworks, just a very faint gray patch - and this was during excellent seeing conditions, at least for BC.

NGC7023 - A "blinking" nebula, surrounding a star in Cepheus. You can see it only with averted vision. It disappears when you look at it directly.

NGC7380 - Beautiful nebula and star cluster combination in Cepheus. This is also a star-forming region, like M16 and M42.

NGC40 - A tiny planetary nebula in Cepheus

IC1396 - A nebula surrounding a cluster in Cepheus, except that I couldn't see the nebula.

NGC7140 - Another nebula and cluster combo in Cepheus, but I couldn't see this nebula, either, even with filters. Oh, well.

We began packing around 8:30pm. The tarpaulin I placed on the ground underneath my scope wasn't even damp! That's how dry the evening air had been. This was definitely a first for Broad Creek.

- Roy Troxel

Observation Report
Sunday, 11/7/2010

My new 100 mm refractor kept beckoning to me, like it was saying isn't it time we got out again. I checked the reports that I had filed and my last time out to Broad Creek was in August to do some astrophotography. The last time I went out just do visual observing was in early July.

The skies had changed enough since then and it was time. Friday the 5th and Saturday the 6th were shaping up to be nice and several members had plans to get out to Broad Creek. Unfortunately, I could not. The forecast for Sunday improved and I called Roy and we agreed to meet at Astronomy Hill as the sun was setting. I was not able to get there till around six, and arrived as some clouds were gathering to the north and south. The forecast was for completely clear and I was expecting that these clouds would go away. If not, there was enough clear sky to keep us busy. I started setting up but before I could even complete my alignment, Polaris became clouded over. I approximated as best as I could and spent some time looking at brighter objects, mostly Jupiter, using the refractor. In short order, the sky became completely covered over though there was a spot of clearing skies to the north, where the clouds were coming in from. Roy and I talked a bit and sure enough, the sky began clearing and eventually became completely clear.

For the next hour or hour and half, I spent time hitting some of my favorite objects using an assortment of eyepieces. I worked my way around the sky, looking at M-13, The Ring Nebula, The Dumbbell Nebula, Alberio, the Double Cluster and The Pleiades. The clusters in Auriga were too low. I forgot to bring my HCAS 40 list but did remember that it had Almach on it and I did see it. It is similar to Alberio but a lot tighter and very pretty.

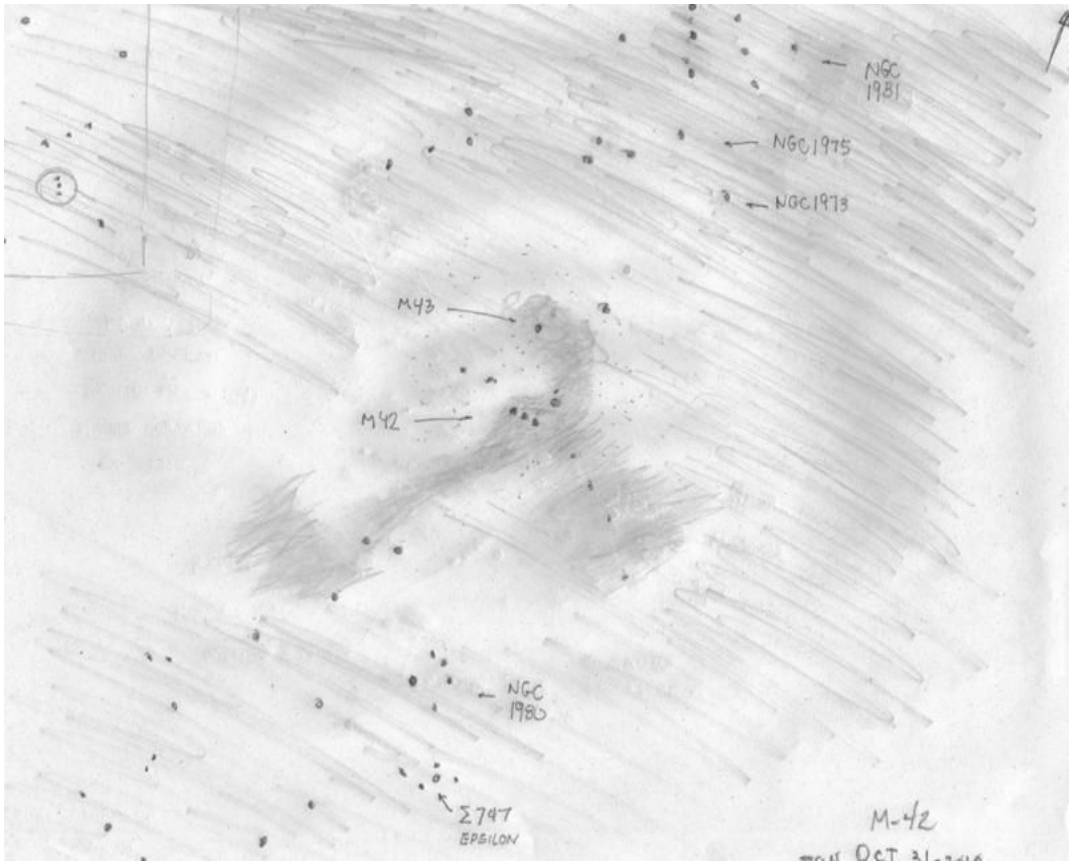
Mostly, however, I spent my time looking at Jupiter. I was able to take the power up to about 150x using a 6 mm Ortho. The image broke down when I used the 5 mm (180x). The two speed focuser worked like a dream achieving focus at these powers. The planet, without the SEB, looks eerie. I was hoping to see the GRB, but no luck. Two of the moons were so close to each other that I thought it was one moon that was out of focus.

And the then the clouds rolled in again and we decided to pack it in. It was already 9:00 pm and we figured it was not worth the time to wait for it to clear again. So we packed up and by 9:15 we were on our way out.

Of course you know how this worked out. By the time we hit the gate it was clearing and by the time I got home a half hour later it was clear again. I unloaded my car and as I put out the trash, the clouds were again rolling in from the north east.

Overall, I was glad I was able to get out. I got about 1.5 hours of observing and got to see Jupiter while it was quite large. After I got my scope aligned after the sky cleared, it worked perfectly, slewing from one side of the sky to the next and putting the target dead center in the eyepiece. The eyepieces, specially the Orthos, worked quite well in the refractor.

- Tim Kamel



Sketch of Orion Nebula by Gary George.
Seen through 25 x 100 binoculars on Oct. 31, 2010. 4 am to 5:30 am

HCAS Observatory
November 13, 2010

For those that didn't make it to the open house on Nov. 13(which wasn't many - huge turnout by club members!), you missed out on a good 2 hours of observing done by members at the end of the open house. The thin cloud layer helped create some of the best seeing we've had all year, allowing for some of the greatest planetary observing any of us have ever done. I showed Mike Talbard how to collimate his 11" Celestron and with a cooled-down and collimated scope, we started to really up the power. We ended up observing each planet and the moon anywhere from 460x all the way up to 1120x!!! A sharp focus was achievable at 500-600x, a good focus in moments of steady seeing was possible even at 800-1000x.

Uranus shows a light polar cap and darker color below it, being different cloud patterns on the surface.

Jupiter was the size you wish it could always be, it was massive and showed multiple bands but the real fun was in observing detail on Jupiter's MOONS. The moons resolved into discs and Ganymede was clearly twice the diameter of Io! You could even make out a dark spot on Ganymede, which would be a huge surface feature on the moon!

Neptune was tough but with a lot of magnification you could make out slight changes in the brightness across the planet, indicating various details changing across its surface as well.

The moon was unreal at those magnifications. A large crater filled the entire eyepiece at about 1000x, and inside of the crater was a huge mountain that was casting a very long and pointy shadow inside of the crater. The shape and size of the shadow inside of the crater would change throughout the night. There was also a canyon on the moon that was in complete darkness, with

no light shining down inside of it but all of the moon around it was lit up. Later that night the wall of the inside of the canyon was finally showing some light.

We later went up to the dome and with the C14 observed all of the same objects often at 800x or more, seeing and confirming all of these details. Jupiter's moons were even better in the C14, making it blatantly obvious they were different sizes. But one thing I wanted to try for with the large telescope...observing Uranus' moons!! It turns out Sky & Telescope does have a locator for the moons! At about 10pm both Titania and Oberon were located a very good distance from the planet, so we definitely saw Titania!! In fact if we had slewed the telescope farther from Uranus we might have picked up Oberon.

In all the years I've observed, this was definitely the best planetary viewing I've ever had.

- Jeremy Kirkendall

Outreach Programs

Moon Rocks Presentation

An enthusiastic student of the NASA moon rocks assists Gary George's presentation.

With the close of our last public viewing of this year's Lunar Samples Program, I now have some time to sit back and relax and think about what this club has just accomplished.

Last June, both Grace and I started on the application to request and bring the Samples up to Harford County and show them once again to the schools here. Our goal this year was different from last year's, because after driving ourselves in the ground last year and doing whatever possible to show them to just about everyone, we learned our lesson. This year we decided to apply for the rocks over a two-week period and show them to the students every other day, to give ourselves a break.

Well. I can honestly say that somewhere our memory of that plpan just flew out the window (Alzheimer's had to set in) because we have done something that I really don't think we will be able to break. Now, I don't want to "toot my own horn" because I'm not. We did this as a group and not individuals, When Grace got sick, and she called me on that Sunday evening, I could have told her that we would have to cancel a few presentations, but I didn't and I wouldn't. Instead, the club stood up and grabbed the reins and off we went.

We got through that week because a small group of people stepped up to the plate and re-arranged their schedules and helped out. I personally would like to thank those people. First is Mark. We all love this man, and if you are ever fortunate enough to do a program with him, you will come out of it with so much more knowledge than you had, and you will be forever grateful.

Next are Tim, Larry and Karen. All three of you are just great. Tim, for that moment that you are standing there wishing that you had a "cold" glass of water, in walks Tim with lunch and all you can do is grab the coke cola he walks in with, Larry for rearranging his schedule from work to come down and help me, and Karen, talk about a life saver, when you think that you just can't say another word and think to yourself , "What do you say next?" around the corner walks Karen.(I didn't mean to walk out of the classroom this morning after you got there. It's that after talking to 4500 kids I was just talked out!!!) Grace, without you, sweetheart, I would still be pulling out what hair I have left. It was you that kept each of us sane during this. THANK YOU VERY VERY MUCH !!!!

Now, we as a group can honestly say 4,571 people came and looked at the moon rock samples. I have put a little over (believe it or not) 400 miles on my car. That's two tanks of gas.

I have written an e-mail to NASA asking if they keep tabs on how many people see the samples over a two-week period. Well. they don't, but we as a group can "toot our horns". So again let me say "THANKS" to all for a very rewarding experience. Here is the copy of the letter I received back this morning from NASA. Enjoy:

Hi Gary-

I am glad that the samples were such a huge success. Unfortunately, no, we do not keep up with those kind of numbers. I do have to keep up with how many people are certified to use the disk and how many disks are used throughout the United States. Thank you for your support of this program and reaching so many young minds.

Thanks-

Bridget C. McInturff
Curation Education Disk Specialist
NASA/Johnson Space Center

NASA's moon rocks in plastic container

Outreach Program
October 13, 2010

The outreach program for Homestead Wakefield Elementary School was scheduled for Wednesday, October 13th on the school baseball diamond.

It was a beautiful day, with nice blue skies and not a cloud in the sky and this continued into the night. The weather was fairly mild though it did turn colder after the sun set, and was decidedly chilly by the time it ended.

This was a school wide program that was well advertised and well prepared by the school staff. Sky subjects were selected before hand to represent the various classes of solar and deep sky objects that are available and these were assigned to Society members. Student Guides were assigned to telescope stations and were prepped on what to say to those looking through the scopes. There was also a program inside the school handing out materials, discussing telescopes, showing our meteorite and showing a slide show of Hubble photos. There were people making planispheres and there was a video running on a loop in the gym.

In all, we had an estimated 700 visitors that night in the two hours that we provided the outreach. This included students as well as parents and siblings.

Representing the Society were Joe Manning, Tim Kamel, Angela & Tom Rusek, Larry and Ricky Hubble (who set up the auto guider and were showing video of the moon), Tim Blanchard, Mike Talbard, Gary George, Mark Kregel, Colleen Gerlach, Grace Wyatt, Roy Troxel, Beverly and Sara Abremski, Tom Miller, Dale Edmunds. Mostly, we set up telescopes but we also had a set of binoculars on a parallelogram mount.

My assignment was the moon, and I brought along my 8" f/4 reflector on my LXD-75 go to mount. My intent, by having a mount that tracked, was to minimize adjusting the scope so that people could keep looking through without interruption. Unfortunately, it did not happen that way. People

started arriving early, and since I was assigned the moon, I thought I would start early and did a rough alignment. It was too rough and I needed to constantly bring the moon back into the field of view. By the time it was dark enough that Polaris was visible, I was so busy I could not stop and do a good alignment.

It was a heck of an outreach, remarkable for the number of visitors that came to look.

- Tim Kamel

Open House
October 16, 2010

October 16, 2010 marked our Astronomy Day celebration. To commemorate the day, we had two functions. The first was during the day and was at the HCCC. The second was at night and was at the observatory.

At Aberdeen Hall, we set up a display of various astronomical themes that includes a display of telescopes and a display on light pollution. Grace manned a table to register guests and provided handouts. Karen did a birthday star program. Larry and Ricky manned the astrophotography display. I set up my ETX-70 outside with a solar filter and was able to show off sunspots (yes, there were sunspots, four of them to be exact). We also had and vanilla and chocolate cake to celebrate the Society's 40th anniversary. In all, we had 66 guests join us at Aberdeen Hall.

The day session ended at 4:00 PM, and after cleaning up and dropping of the materials at the observatory, several of the participants adjourned for dinner at nearby Bull on the Beach.

We then reconvened at the observatory in preparation for the night session, our open house for the month.

The weather continued to cooperate and we had a spectacular event. We estimated over 200 guests that night. Larry was operating the C-14 and I had the Society's Meade 8" SCT set up with the autoguider. I was showcasing the moon using the autoguider and showing video of the Straight Wall. Ricky was directing traffic and redirecting a school bus that was actually trying to get onto our driveway. This bus was carrying club members of the Space Telescope Science Institute's Youth for Astronomy and Engineering Program. We had several other scopes set up on the apron and Grace was manning the registration table, doing handouts, handing out prizes for children that completed the quest and signing the notes for 75 students for extra credit for their science teacher, etc.

Participating for the club during the day were Joe Manning, Gary George, Paul Sokolowski, Chris Reilly, Karen and Maggie, Tom and Barbara and Angela, Larry and Ricky, Beverly and Sarah, Dave Jayroe, Mark Kregel, Mike Talbard, Tim Blanchard, Grace Wyatt and me.

The function ended at about 10:30 or so as the last guests left and we finished cleaning up.

Tim Kamel

Astrophotography

Flame and Horsehead Nebulae, Orion

Taken at the Black Forest Star Party last September. This was shot with my 40D (who says DSLRs can't do red stuff?) on my ed80 refractor. 29x2 minutes for 58 minutes of total exposure under mag 7 skies, ISO 1600.

That's not vignetting in the top left corner, that is the ONLY black spot in the image. The huge glow below the Horsehead and Flame is all background dust! I didn't think it was until I saw a pattern with some dark spots that matches the dust in other images too. - *Jeremy*

Photo Processing Workshop - Nov. 18th

No prior knowledge of stacking or processing is required!

On Thursday, November 18, I will host a Stack and Processing Astrophotos Workshop at the observatory classroom. I plan on bringing my own desktop and 22" monitor, so we can hook up the computer to the projector to show you the steps but on my monitor it'll be easy to see the actual look of the final image and have a better idea of what each step does.

This workshop will focus on the basics of how to stack images and the basics of processing. The workshop will involve minor processing in MaximDL and most of the work will be using Photoshop and Noel Carboni's photoshop actions.

If you have ANY astrophotos you would like help with stacking, processing, or would like a second opinion of your processed images, please bring copies of the images on a thumb drive or dvd. Try to bring the largest uncompressed version of your image(s) possible, I can explain this at the workshop but to keep it short, processing a .tif will yield much better results than a .jpg.

Don't forget, if you don't have any images right now, you can attend Larry's workshops and try to capture several frames of an object, bring them to this workshop, and I will show you what to do with them. You do not have to own ANY equipment if you attend all of the workshops and have

clear skies to shoot. ANYONE CAN DO THIS!

Please email me at zeldaboy101@hotmail.com to let me know if you plan to attend.

- Jeremy Kirkendall

Miscellaneous

Meteorite Of The Month

ALLENDE

This meteorite was a witnessed fall at 1:05 AM on February 8, 1969, in the town of Pueblito de Allende, Chihuahua Province, Mexico. The strewnfield (where the meteorites fell) was over 30 miles long. Over two tons have been recovered. It is the largest fall to date of a carbonaceous chondrite (CV3), a stone meteorite. This is an extremely rare type of meteorite.

Amino acids have been found in this type of meteorite, the building blocks of life. Small irregular white features called calcium aluminum inclusions are very prominent in Allende. These minerals are believed to be some of the first silicate minerals that came out of the original solar nebula, making them the oldest known material in our solar system. They are older than our Sun, forming some 4.7 – 5 billion years ago.

Pictured specimen is an eight gram part slice of the Allende meteorite showing the wealth of chondrules and calcium aluminum inclusions in the dark gray matrix.

- Phil Schmitz

Last Month's Astro Question: How many stars in the IC1101 galaxy?

The Question: If you took a standard NFL football field of 100 yards long and 160 feet wide, a wall four feet high would be needed to contain all the stars in our Milky Way if they were the size of bird seed (the round birdseed). Of course, stars are different sizes, however for this exercise

they are the same size, so how high would the wall have to be to contain the 100 trillion stars of IC 1101?

The correct answer is:
If the MWG contains 200 billion stars then the wall would have to be 2,000 feet high for IC1101.

(Submitted by Tom Rusek*)*

BINOCULARS FOR SALE

Two pairs of Orion Giant Binoculars:

1. 16X80mm, Excellent Condition
Fully Multi coated/ Field of view 3.5/ Eye Relief 16MM
Weight 5lbs 9oz
BAK 4 glass prisms, tripod adaptability
Binoculars also come with hard case/ neck strap /4 end caps and an L bracket
Asking $200 cash

2. 20X80mm, Excellent Condition
Fully Mulit coated/Field of View 3.5/ Eye Relief 15MM
Weight 5lbs and 9 oz
BAK 4 glass prisms, tripod adaptability
Binoculars also come with hard case/neck strap/4 end caps and an L bracket
Asking $200 cash

If interested, please call Cathy at 410-671-9403

ASTRONOMY WEB SITES

Clubs and organizations:

www.harfordastro.org	Harford County Astronomical Society
www.baltastro.org	Baltimore County Astronomical Society
www.astroleague.org	The Astronomical League (Good site for finding local clubs)
www.darksky.org	Site for information about light pollution. Advice to help save money and dark skies.
www.cloudynight.com	Provides beginner advice, equipment reviews

Publications, general information and interesting sites:

www.skyandtelescope.com	Sky and Telescope Magazine (Check out "This Week's Sky at a Glance")
www.astronomy.com	Astronomy Magazine (Check out "Welcome to Astronomy"
http://heritage.stsci.edu/	Hubble Telescope Image Gallery
www.nasa.gov	NASA Home Page—watch mission launches live
http://stars.astro.illinois.edu/	Jim Kaler's site on stars and constellations
http://seds.org	Space travel, astrophotography, Messier objects, etc
http://www.kidsastronomy.com/	Great site for children interested in astronomy
www.spaceweather.com	Sign up for free emails about astronomy events (meteor showers, aurora activity, etc**)**
www.universetoday.com	All things astronomy: Current events and sky watching suggestions
www.space.com	Space and astronomy news
http://forum.ourdarkskies.com/	Astronomy forum with a wide array of visual observers and talented astrophotographers
www.heavens-above.com	Input your location and this site will tell you when

	to look for man made objects flying over
www.andysshotglass.com	Affordable astronomy and astrophotography
www.spaceweather.com/flybys	Input your zip code for satellite fly by information

Dealers:

www.telescope.com	Orion Telescopes (Check out "Learning Center" and "Smart Buy Advisor")
www.celestron.com	Celestron Telescopes
www.meade.com	Meade Telescopes

Avoiding Amateur Astronomy Disasters

By Tom Koonce
Antelope Valley, CA. Astronomy Club

The weather is turning cold and all of us want to maximize our observing time and minimize how long we're exposed to the bitter cold. In circumstances like this, we amateur astronomers tend to get in a hurry, or perhaps not think things through before doing something… and disaster can strike. Disasters come in many forms, among them, dropping an eyepiece to the ground because it wasn't held securely. Hearing the thud/crunch/tinkle sound is sickening, even for those observers around you. Having your secondary mirror come loose and drop onto your primary mirror is pretty bad, but what about dropping an expensive precision filter into the dirt? And then there are the truly dangerous mistakes such as not making sure a stepstool or ladder is on firm ground or loading your dobsonian telescope lengthwise into the car with the secondary at the front and the primary at the back of the car. I'll explain each of these and how to reduce the risk of these happening to you.

The cold affects each of us to a differing extent. I'm assuming you already know to dress for weather 20 degrees cooler than weather reports predict. After all, you're going to be standing still in freezing weather, not chopping a cord of wood. I also assume that you know to remain hydrated since this can affect your thought processes and reaction times. Some people get cold just thinking about going out at night, some must have a furnace built inside of them because they seem to remain warm with little notice of the thermometer. Most of us are in between these extremes. Fingers and toes get cold first, and then grasping objects becomes difficult, thought processes slow down, and our logic becomes blurry. The trick is to recognize how **you** respond and take steps to counteract it before you damage equipment.

Disaster: Dropping eyepieces. Think ahead about which eyepieces you will need for the next hour. Keep a fanny pack on over your jacket that makes storing and switching eyepieces convenient and minimizes how long your fingers have to grasp them. Stick your hands inside of your jacket and under your armpits for a couple of minutes before you do the eyepiece switch. Another trick is to place a packing quilt or old rug under your entire telescope setup so that if something is dropped even after taking precautions it might survive the plunge.

Disaster: Secondary Mirror Drop. Always check your equipment. Before you start your evening's observing, do a "walk-around" of your telescope. Are there any frayed wires? Are there any loose bolts? If you have a Newtonian, is the secondary secured to its mount? Have you placed a small safety wire between the spider and the secondary… just in case? This is a disaster that can be avoided. I have seen/heard this happen to my buddies 6 week-old 14" dob at a public outreach event. It destroyed his primary mirror. During your walk-around, be conscious of any tools that you need to setup your telescope. Wrenches and screwdrivers can be devastating when applied to any optical surface. Tools tend to slip when brains and fingers are cold. Consider drilling a hole through the handle and affixing a cord loop to each tool to wrap around your wrist to eliminate the possibility of despair.

Disaster: Filter Drop. Think ahead about the dexterity you're going to need to take the small filter out of its case and screw it onto the eyepiece. It's possible that filters can be only partially screwed onto the eyepiece and may drop off onto the primary mirror during observing. In my dobsonian, I can vouch for the fact that a two inch O-III makes a heart-stopping sound when it bounces off of the primary mirror. Not good. To remedy this situation, take the time to make sure that your fingers are warmed up and the filters are fully screwed on. Alternatively, consider installing a filter slide on newtonian or dobsonian telescopes. I have made this modification on my dob and it makes using filters simple, convenient and safe. If you have this type of telescope, check out http://www.astrocrumb.com/ for the best filter slides I've found.

A filter slide provides safe and easy access to your filters. Photo used with permission. www.Astrocrumb.com

Disaster: Stepstool and Ladder Tilt. Anyone who is showing the night sky to the general public or ho has a larger dobsonian knows the pitfalls of using stepstools or ladders. They need to be sturdy and lightweight, but rarely are they made to be placed upon bare earth. Sometimes ground can be frozen hard on the surface, but mushy just an inch or two below. Take the time to be sure of the placement of their feet to avoid a fall in the darkness. Test the stepstool with your full weight with someone standing in the safety position to catch you before trusting it to anyone else.

Disaster: Mirror Missile. Avoid this disaster by loading your newtonian / dobsonian telescope correctly into the back of your SUV. Think of what might happen during an emergency stop or front crash. If the tube is loaded so that the primary mirror and mirror cell are forward and the secondary mirror closest to the rear of the vehicle, an emergency stop will just press the primary mirror more securely into the mirror cell. However, if the secondary mirror is forward and the primary mirror is closest to the back of the vehicle, such a stop will likely rip the mirror from the three small protrusions that keep it centered on the mirror cell, sending it crashing forward, through the secondary mirror and likely into the back of the head of a person sitting in the front seat. Having your life saved in a crash by an airbag only to have your telescope's mirror kill you in a shower of glass shards milliseconds later is a serious disaster easily avoided.

OK… Take a deep breath… there is only a miniscule chance that any of these disasters will happen to you, and they are even less likely to happen if you take a few simple precautions involving just a bit of forethought and cost. Stay warm and keep safe out there.

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I'd like to draw your attention to the **Astronomy Outreach Foundation** which is trying to combat the "Graying" of our hobby by attracting Generations X and Y into the fun of amateur astronomy. This is a non-profit foundation started by a combination of amateur astronomical industry leaders "to stimulate greater public interest in astronomy and to assist everyone in becoming more engaged in activities that allow them to learn more about the universe." For more information, please visit http://www.astronomyoutreachfoundation.org
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Note: I have no vested interest in the Astronomy Outreach Foundation or in Astrocrumb Filter Slides. But I have found that both are worthwhile entities.
– Tom Koonce

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